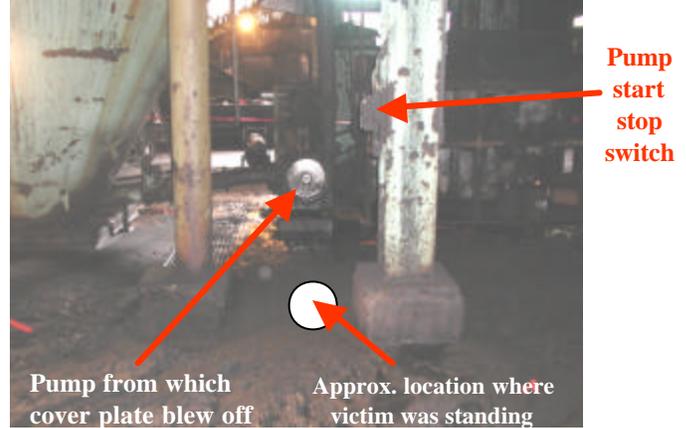
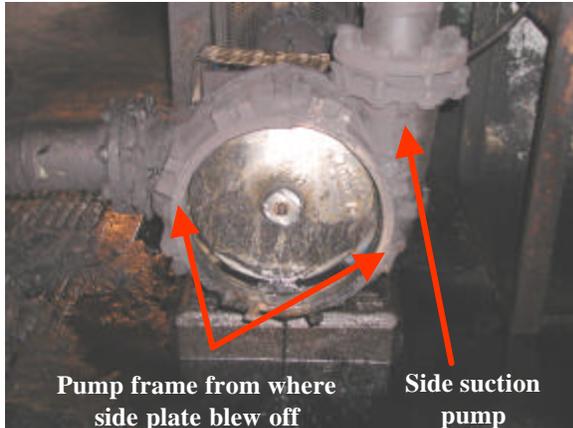


Virginia Department of Mines, Minerals and Energy

HAZARD **A**LERT **L**IVE **T**OMORROW

PUMP SAFETY ALERT

On January 28, 2002, at approximately 8:30 p.m., an accident involving an exploding fine coal re-circulating pump at a Buchanan County mine preparation plant fatally injured a plant employee. The pump had been cavitating due to line blockage and was running hot when the victim apparently de-energized the pump at the adjacent start/stop switch. An explosion followed in which the pump side cover plate was blown-off and struck the victim causing fatal injuries.



A REVIEW OF BASIC PUMP SAFETY PROCEDURES AND PRACTICES

- All personnel working with and around pumps must understand the potential hazards and be effectively trained to operate and maintain pumps safely.
- Any pump losing prime can cavitate (run on air) and overheat in a relatively short period of time. This situation can result in an explosion of the pump, especially if cool liquid is suddenly introduced into the pump.
- When working with or around pumps, be alert to unusual sounds (like marbles rolling around in the pump), steam or other evidence of heating, and any other indication of mechanical or operational problems.
- When a problem is detected, respond immediately and always de-energize at a safe location away from the pump; such as a remote control switch located on another floor in the plant.
- When installing start/stop switches for a pump, especially a stationary pump, install in a safe location away from the pump and in the most protective location for personnel should the pump explode.
- Always follow manufacturers recommendations for start-up and shut down of pumps. This is especially critical for solids pumps. Providing a clean water bypass and flushing lines after shut down will prevent problems. Always confirm proper operation of the pump on start-up by checking discharge or by other means.
- Pumps should be provided with resistance thermal devices and automatic shut off timers to control overheating and potential explosion hazards.
- Where appropriate, pumps should be equipped with automatic floats and air release valves to improve operation and maintain prime in the pump.
- Regular maintenance inspections should be made of pumps to detect signs of structural fatigue such as cracks in the housing, damaged or missing bolts or other components.
- Permissible pumps should be inspected as required to ensure that permissibility standards are maintained.